The Global Supplier of PCE Products and SNF Materials
The Expert of Concrete Admixtures in China

$300,000,000 + Dollars Billions Turnover in 2019 by about 800 employees

1000 + Customers in Batching Plants Using Our Polycarboxylate Superplasticizer

With 100+ awards and 60+ Patents for PCE Products and PCE-based Superplasticizer

KZJ 15 Manufacturing Bases have PCE Production Capacity of 1,000,000tons/year and SNF/PNS Production Capacity of 60,000tons/year

More than 300+ Civil and Chemicals Engineers for 24hrs Technical Supports

KZJ

Construction Chemical Products and Solutions

The use of concrete admixtures in today's world of construction is omnipresent. Concrete without it is unimaginable. Our PCE products, SNF materials, PCE-based Superplasticizer and other concrete specialty chemicals are suitable for all types of ready-mixed and precast concrete used in high-rise buildings, roads, dams, tunnels, bridges, ports, power plants, Malgevs, high-speed railway, city metro line and other industrial facilities and projects.

KZJ New Materials Group Co., Ltd.

PCE Materials | Powdery SNF | Polycarboxylate Superplasticizer

Contents

Preface

With the growing use of alternative cementitious materials in cement and mortar, the need for high performance admixtures in concrete have increased currently. As the demand for concrete admixtures and additives are on the rise currently, particularly due to the increasing performance requirements placed on concrete for infrastructure construction, KZJ have introduced new technology and refreshed the product line to cater to the updating market demand in concrete admixtures industry.

The Perfect Lends Charm to Concrete

KZJ China
15 manufacturing Bases

ISO 9001 ISO 14001 ISO 18001 CRCC

Our 15 Manufacturing Bases Locate in Fujian Xiamen, Fujian Zhangzhou, Chongqing, Guizhou, He'nan, Shanxi, Guangdong, Zhejiang Jiashan, Zhejiang Jinhua, Hunan, Jiangxi, Jiangsu, Hainan and Yunnan.

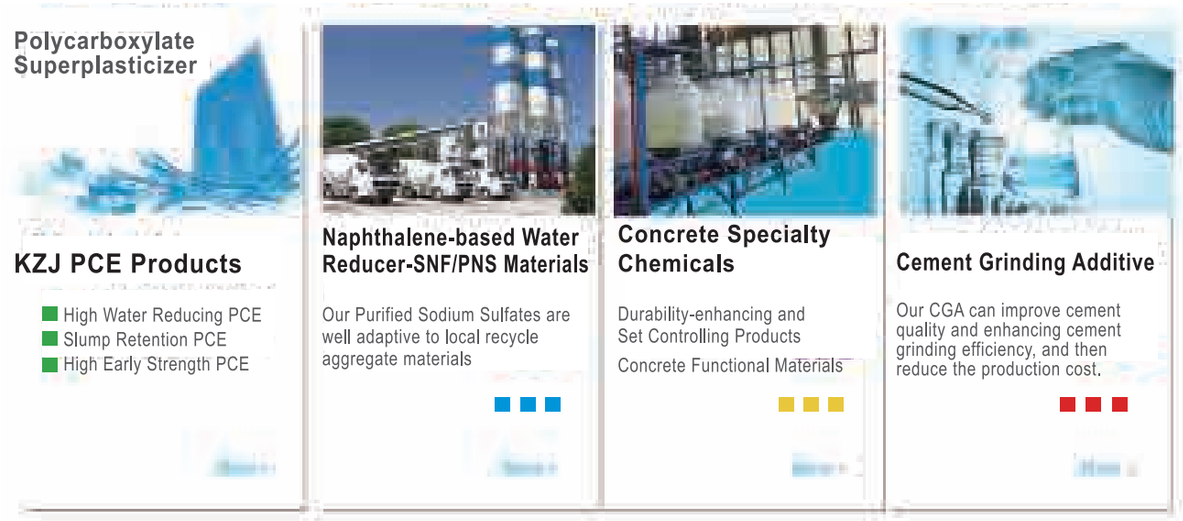
KZJ Company Profile

Founded in 2000 and owned by LETS group (Stock Code: 002398 SZ), KZJ has 15 manufacturing bases and more than 1,000 employees involving in R&D, manufacturing, sales and technical support that generate an annual sales of about Two billion yuan in 2019.

1,000,000 Tons/year
Production Capacity of PCE Products

60,000 Tons/year
Production Capacity of SNF Materials

$30,000,000 USD Dollars
Turnover in year 2019



KZJ is the technological advanced leader (The Top one in China Concrete Admixture Industry--based on the sales quantity of concrete admixtures) with a production capacity of 60,000 MTS of SNF/PNS/BNS materials and 1,000,000 MTS of PCE products. This leadership is earned by the value of vertically integrated industrial chain, 15 advanced manufacturing bases, more than 300 technical engineers, dynamic R&D team, strong technical support and financial strength.

KZJ Certificates and Awards

We have introduced QC system of ISO 9001, Environment Management System of ISO14001 and Occupational Health and Safety Assessment System of OHSAS 18001 since 2006. As a qualified partner for China high-speed railway projects, KZJ was awarded CRCC certification from the China Railway Test and Certification Centre 13years ago.

ISO 9001:2015
Quality Management System

ISO 14001:2015
Environmental Management System

CRCC Certificates
Annual Cooperative Supplier Certificate

OHSAS 18001:2007
Occupational Health and Safety Management System

KZJ Values & Principle

Below five business principles are expressing our corporate culture and the foundation of our future success and direction of our joint efforts by our employees, suppliers and customers.

IDEA
Science builds new homes.

Principles
Leading the Progress of Construction Science and Technology to Create Social Value and Realize Enterprise Profits.

Vision
To be the Pacemaker in the Industrialization Progress of China Construction Science and Technology.

Key value
Continuous Learning, Enjoy Healthy and Wealthy Life.

Technology Innovation Platform

KZJ Historical Milestones

Who is LETS Group?

We have changed the name of XMABR to LETS Group in 2019

- **Construction Technical Business Division**
  China construction engineering comprehensive technical experts to provide the concrete solutions covering the whole life cycle of constructions for the important projects in China.
- **Concrete Chemicals Business Division**
  KZJ China provide more than 50 types of concrete chemicals, such as Superplasticizer, Set Accelerator, Set Retarder, Air Entraining Agent, Defoamer, Viscosity Modified Agent, Anti-clay Agent, Corrosion Inhibitor, Silica Fume and other funtional concrete admixtures.
- **Construction Engineering Business Division**
  The Special Building Material and Ready-mix Concrete provider

Year 1980

XMABR Founded

Year 2000

KZJ Xiamen Factory had Founded to produce SNF&PCE Products

Year 2005

KZJ Fujian PCE Factory has set up in Zhangzhou city. In 2005, It is the biggest PCE factory in Fujian Province, China

Year 2007

- Set Up R&D Center
- Top Ten in China
- KZJ was awarded CRCC certification from the China Railway Test and Certification Centre.

Year 2010

- XMABR has been listed in Shenzhen Stock (IPO 002398.SZ)
- KZJ Chongqing and KZJ Guizhou PCE manufacturing base have Founded

Year 2011~2014

8 Manufacturing bases have been built from 2011 to 2014.

- KZJ SNF Factory in He'nan have set up.
- KZJ PCE Factories have founded in He'nan, Shanxi, Zhejiang, Guangzhou Foshan, Hunan, Jiangxi province, China
- Top Two in China

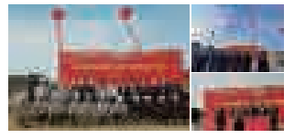
Year 2015 ~2017

- Our PCE and SNF products have well sold in Africa, Middle East, South America and Southeast Asia Market
- KZJ Rock Materials INC in Philippines have founded in 2016
- KZJ Construction Chemicals (M) Sdn Bhd have set up in Malaysia in 2017

Year 2018 ~2019

- The Top one in China concrete admixture industry based on the sales quantity in 2019.
- PCE Production Capacity of 1,000,000tons and 60,000 tons of SNF Capacity Totally.
- KZJ Hainan factory has founded in 2019.
- There are 15 Manufacturing factories in China

Year 2020



Alkoxylation Derivatives Manufacturing bases to produce Ether Macro-monomer for PCE Products has set up in Fujian.

Core Competencies

The key factor of our success is our strategy that focus on clearly defined core competencies of innovations of our dynamic R&D team, 15 advanced manufacturing bases,300+ technical engineers, vertically integrated industrial supply chain and the financial strength as IPO company.

Dynamic R&D Team

Innovations are our wellspring and our driving force.

15 PCE Factories + 1 SNF/PNS Factory + 1 Manufacturing base of Alkoxylation derivatives to produce the Ether Macro-monomer to PCE products

Located in Xiamen, Fujian Zhangzhou, Chongqing, He'nan, Guizhou, Zhejiang, Jiangsu, Shanxi, Guangdong, Jiangxi, Hunan, Hainan and Yunnan province, China.

300+ Professional Technical Engineers

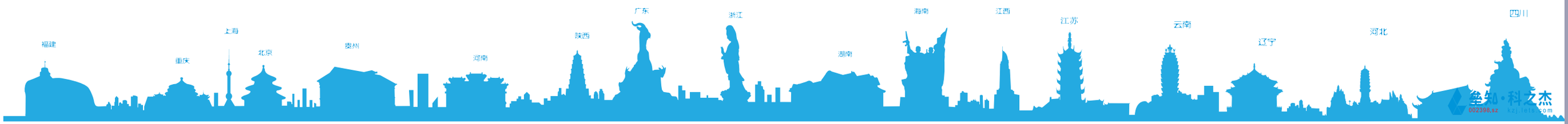
Qualified with the professional knowledge and rich experience of the application of concrete admixtures, our technical engineers are available to support our customers in batching plant to provide the tailored product solution in every phase during the whole construction process.

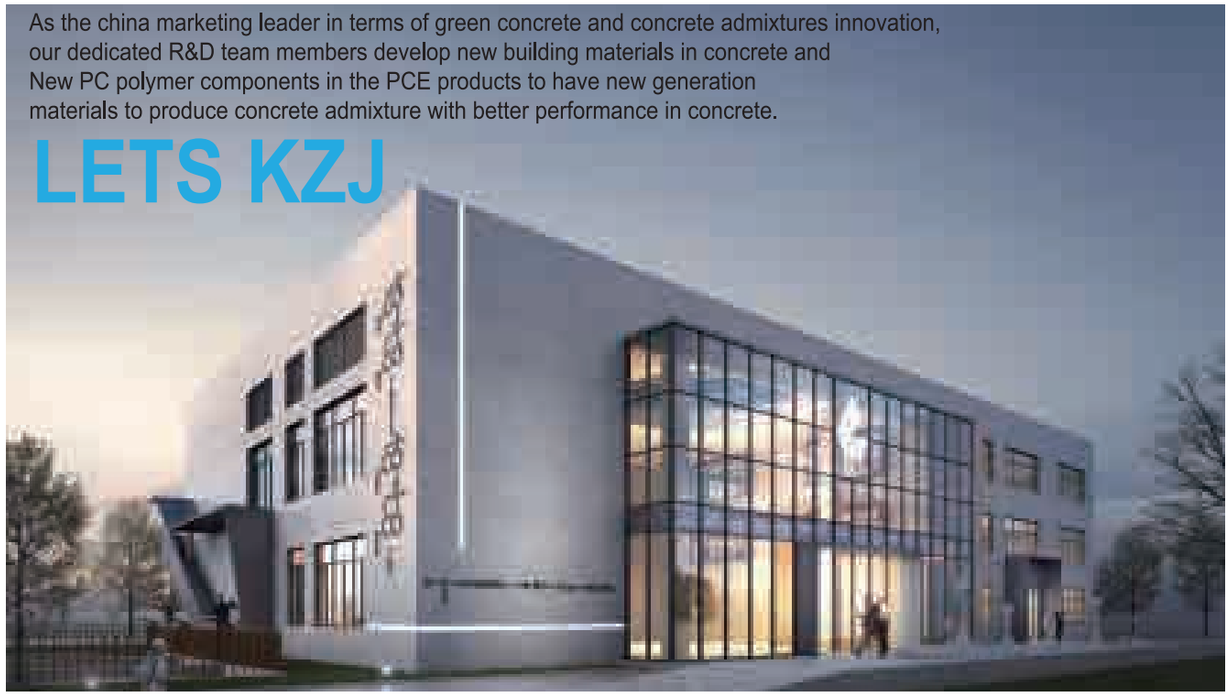
Vertically Intergrated Industrial Supply Chain

KZJ R&D center makes the chemicals' molecular structure design to our raw material supply to make sure all of the materials can be qualified for the final superplasticizer. Our raw material suppliers facilitates in faster delivery and ISO management of quality control.

Strong Financial Strength

As KZJ China is the member of LETS Group which is a public company listed in Shenzhen Exchange Stock, (Stock Code:002398.SZ), we would like to invest abroad directly and are also interesting in setting up joint venture with the partner abroad.





KZJ Scientific R&D Center

Overview of KZJ R&D Center

Founded in 2010, our R&D center covers an area of 19,380㎡ equipped with a large amount of equipments and instruments for different concrete properties performance test on compressive strength development MPa, Flexural strength MPa, cementitious material properties analysis, structure, mechanics, durability, the polymer synthetic analysis, etc. The world-class laboratory resources in our R&D center and technical specialists in concrete design and application ensure that our customers would get the professional technical support on optimizing the concretemix design with our concrete chemicals to have the cost-effective concrete with good strength, workability and duriability.

Research Direction on PCE Products and Concrete Superplasticizer

- Polymer Molecular Structure Design Research and optimize the polymer structure design of ether macro-monomers to have the specialty PCE products
- Microscopic Analysis and Test

Analyze and develop microscopic analysis of PCE products. Use the scientific test method to test polymer structure design to make sure it is workable for development, production and quality control of Polycarboxylate materials, and pilot run as well.

- Supervsion of Production Process Improvement for PCE Products

Our scientific R&D lab equipments and instruments including: Infrared spectrometer, Gas Chromatograph, Gel Permeation Chromatograph, Liquid Chromatography, Spectrophotometer, Chloride Ion Penetration Tester, Thermal Conductivity Analysis, Microcomputer Controlled Universal Testing Machines, Concrete Creep Testing Machines, Early Shrinkage Measuring Instruments, etc.

GPC Report and Spectrum Analysis

SEM Tester

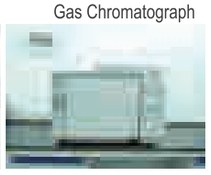
GC-MS Tester

ICP Optical Emission

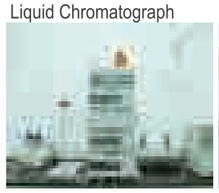
Gel Permeation Chromatograph

Synthetic Lab of PCE Products

Gas Chromatograph



Liquid Chromatograph



Chloride Ion Penetration Tester

Concrete creep Testing Machine

Micro computer Controlled Universal Testing Machine

KZJ

Member of LEETS Group | Stock Code:002398.SZ

The Leader of China Concrete Chemicals Industry

KZJ China,
The Expert of
Concrete
Admixtures

PCE Materials | Powdery SNF | Polycarboxylate Superplasticizers

Our customers who purchase our PCE or SNF materials would get our value added service of technical support on the formula of ready-to-use concrete admixtures to mutual benefit along the whole of project.

Focus on Developing High-valued Concrete Admixtures and
Creating Integrated Solutions for our Customers in Batching Plants.

KZJ Concrete Chemicals

For C15~C150 MPa Ready-mix Concrete with Good Slump Retention

Comply with GB 8076 and ASTM C 494 for Type B, Type D, Type G and Type F.

New Generation PCE-based Superplasticizers
Naphthalene-based Water Reducers
Concrete Set-controlling Admixtures
Concrete Durability Enhancing Admixtures

For C40~C120 MPa Precast and Pile Concrete with High Early Strength

Comply with GB 8076 and ASTM C 494 for Type C, Type E and Type F.

KZJpoint 400Q is designed for the precast concrete having high early strength with short setting time to improve the mould recyle rate

Polyether Macro Monomers

VPEG
Hydroxybutyl Vinyl Ether Polyoxyethylene Ether
KZJpolyether 2400V

EPEG
Ethylene Glycol Monovinyl Ether Polyoxyethylene Ether
KZJpolyether 2400E

TPEG
Isoprenyl Oxy Polyoxyethylene Ether
KZJpolyether 2400T & KZJpolyether 3000T

HPEG
Methallyl Oxy Polyoxyethylene Ether
KZJpolyether 2400H & KZJpolyether 3000H

Remark:
Our PCE products, SNF materials and other specialty chemicals should be stored in a dry location and protected from breakage, deterioration and contamination, also do not exposed them to the sun.

KZJ Products List

KZJ products are suitable for all types of ready-mixed and precast concrete, from very basic to ultra-high strength, use in the construction of high-rise buildings, dams, bridges, tunnels, railways, roads, ports, hydraulic engineerings and municipal engineerings. Our various concrete admixtures are able to improve strength, setting time, slump retention, and appearance and enhance its durability as well. These properties make the concrete placing, pumping and finishing more easily, which is essential to all construction projects.

KZJ Concrete superplasticizer based on PCE, SNF, or Aliphatic material enables the use of alternative and recycled materials for the production of good quality concrete. When it use together with our set-controlling and durability enhancing admixture, The specific properties of the fresh or hardened concrete, such as workability, durability, flowability, early and final strength, retarding time will be enhanced and improved.

KZJ provides a complete line of admixture dispensers to our customers of batching plants who buy our concrete admixtures. This dispensers are easy to be installed and maintained. The dispensers are well adapted to new or existing batching plants.

New Generation PCE Products to Produce Different Types of PCE-based Superplasticizers

High Range Polycarboxylate Superplasticizer with Comprehensive properties of high water reducing rate, superior slump retention, moderate air content, adjustable setting time, nice appearance and good durability in different types of concrete.

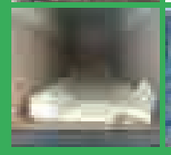
PCE is the major raw material to produce concrete admixtures for optimal use in different types and grades of concrete with higher strength by reducing water cement ratio and better workability without reducing the compressive strength.

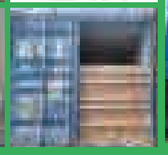
Features and Benefits

- Better Strength Development at Same Flow Expansion and Slump Retention
- Superior Slump Retention and Good Workability of Concrete Significantly
- High Early Strength and Compressive Strength at All Age
- Low Alkali Content and Free of Formaldehyde
- Improving Shrinkage Crack, Creep Behavior and Enhance Durability
- Unique Plasticizing Property, Thus Preventing Segregation and Bleeding

Admixtures containing melamine or naphthalene sulphonates should be avoided to mix or use together with PCE products.

Shelf Life: 12months
Storage Temperature, ℃: -10~+45
Packaging:
1000L IBS Tank, 200KGS Blue Drum ,20GP Flexitank Packing





PCE Products List

KZJpoint 800
High Water Reducing PCE

KZJpoint 650T & KZJpoint 600T
Slump Retention PCE

KZJpoint 300T
Slump Retention and Water Reducing PCE

KZJpoint 300Q
High Early Strength PCE

Polycarboxylate Superplasticizers Made from PCE Products

Comply with ASTM C494 for Type D, Type B Type G, Type E and Type F.

High Range Polycarboxylate Superplasticizer with Good Slump Retention
KZJpoint 400S for C20-C50 Ready Mix Concrete
KZJpoint 400G for C40-C100 Ready Mix Concrete
KZJpoint 400H for C60-C150 Ready Mix concrete
KZJpoint 400F for Frost Resistance Concrete
KZJpoint 400AC for C35-C120 chloride & sulphate Corrosion resistance concrete

Set Retarding Polycarboxylate Superplasticizer
KZJpoint 400SR
KZJpoint 400GR
KZJcontrol 600SR

SCC Polycarboxylate Superplasticizer
KZJpoint 400SCC

High Early Strengh Polycarboxylate Superplasticizer For Precast & Pile Concrete
KZJpoint 400Q

KZJ Polycarboxylate concrete admixture based on the PCE effectively reduces initial stage hydration heat, control temperature cracking and enhance concrete compressive strength to improve construction quality. Also, it can improve the strength, plasticity, fluidity and cohesiveness of concrete to prevent bleeding and segregation, whereby it saves in the quantity of cement according the water reducing rate and enhances the workability. When applied with mixtures like fly ash, grinded slag, silica fume, etc, it can prevent and control temperature cracking for large volume concrete at low water cement ratio and superior slump retention.

The PCE law material to produce the PCE-based superplasticizers below are KZJpoint 800, KZJpoint 650T, KZJpoint 600T, KZJpoint 300T and KZJpoint 300Q.

PCE-based Superplasticizer for Ready Mix Concrete

PCE-based Superplasticizer for SCC Concrete

PCE-based Superplasticizer for Chloride &Sulphate Corrosion Resistance Concrete

PCE-based Superplasticizer for Precast and Pile Concrete

PCE Products Line

Products	Name	High Water Reducing PCE (It is designed to make high-range polycarboxylate superplasticizer with high water reducing rate)		Slump Retention and Enhancing PCE (It is designed to make polycarboxylate superplasticizer with good slump rentiontion performance.)		Slump Rentiontion & Water Reducing PCE	High Early Strength PCE (For Polycarboxylate Superplasticizers Used in Precast and Pile Concrete)
	Items No	KZJpoint 800		KZJpoint 650T	KZJpoint 600T	KZJpoint 300T	KZJpoint 300Q
	Production no.	S04B	S08F	S10E	S10E	S04C	R03
MSDS		√	√	√	√	√	√
COA Format		√	√	√	√	√	√
TDS		√	√	√	√	√	√
TSC (Total Solid Contents)		50~55%	50~55%	50±1%	41±1%	50±1%	50±1%
Appearance		White Viscous Liquid					
Viscosity		1.110±0.02	1.110±0.02	1.110±0.02	1.108±0.02	1.112±0.02	1.113±0.02
pH Value(undiluted)		6±1	6±1	6±1	6±1	6±1	6±1
Dosage (%) 20% Based		0.5~2.0	0.5~2.0	0.1~1.0	0.1~1.0	0.5~2.0	0.5~1.5
Features		Up to 36% water reducing rate on concrete with the better workability than S08F	Up to 40% water reducing rate based on good material and concrete mix design	Good slump retention and softening of concrete viscosity, higher water reduction by combining with KZJpoint 800		PCE Water Reducer+Slump Retention, Less slump loss in 2-4hrs	Short setting time and High early strength concrete, Flexible Slump control by using with KZJpoint 650T

Remarks:
1. The items mentioned above can use together with each other to get the best formula of concrete admixture.
2. KZJ PCE products are non-toxic, non-irritative, non-radioactive, non-flammable and non-corrosive to steel bar. For detailed Health, Safety and Environmental recommendations, please consult and follow all instructions on our MSDS.

KZJ SNF|PNS Materials to produce Naphthalene-based Superplasticizers

KZJ Classic Naphthalene-based and Aliphatic Water Reducers

PNS is short for Sodium Naphthalene-Formaldehyde Sulfonate and becomes the positive dispensing element on concrete. Based on the polymers which are absorbed by the cement granules, SNF wrap around the granules surface areas are at the very early stage of the concrete mixing process.

Our SNF/PNS materials are compatible with all types of cement, fly ash, slag, silica fume and other admixtures to achieve comprehensive performance in concrete. When used with other admixtures, each one must be dispensed separately into the mix. It is well adaptive to substance of lignosulfonate, melamine, aliphatic, anthracene, but avoid to use together with PCE superplasticizer.

KZJspark 100 and KZJspark 200 are brown powdery superplasticizer to make the ready to use concrete admixtures of KZJspark 400S and KZJspark 400SR which comply with specification of oncrete admixture: ASTM C 494 for Type A, Type D, Type E and Type G.

Features and Benefits

- Moderate Low Air-entraining.
- Superior Dispersion and Strong Adaptability with Low Level or Recycle Aggregate Materials in Concrete
- Stable Workability, Dispersion Ability and Low shrinkage
- Easy Addition During Batching Process
- Strong adaptability: SNF/PNS are Well Adaptive to Substance of Lignosulfonate, Melamine, Aliphatic and Anthracene

Production Area

Remarks: KZJ PNS&SNF, Aliphatic products are non-toxic, non-irritative, non-radioactive, non-flammable and non-corrosive to steel bar.For detailed Health, Safety and Environmental recommendations, please consult and follow all instructions on our MSDS.

SNF|PNS Products List

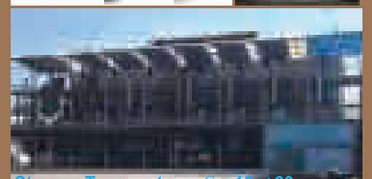
KZJspark100 Powder
16% ±2% Sodium Sulfates SNF|PNS
92±2% Dry Material Content %

KZJspark 200 Powder
5%±2% Sodium Sulfates PNS
94±2% Dry Material Content %

KZJspirit 300 Powder
Aliphatic water reducer
94±2% Dry Material Content %

Mechanism of Action

Naphthalene-based Superplasticizer

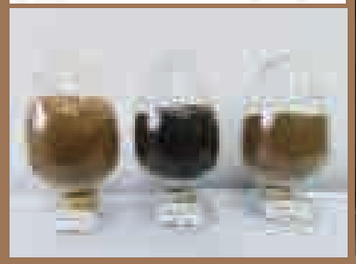


Storage Temperature, ℃: -10~+60
Packing: 700KGS/Jampoo Bag
25KGS/woven-paper based bag
Shelf Life: 24 months

Why has PNS/SNF high dispersion at low water/cement ratio and well adaptive to recycle aggregate materials in concrete.

The sulphonic groups of the polymer chains increase the negative charge of the cement particle surface and disperse these particles by electrical repulsion. This electrostatic mechanism causes the cementpaste to disperse and has the positive consequence of requiring less mixing water to obtain a given concrete workability. The rapid growth of hydration crystals will change the surface mechanical of the particles and set the free dispersion of them.

The average dosage of KZJspark 400S and KZJspark 400SR are usually 1.0-2.0% based on cementitious materials, namely approximately 1.0– 2.0 litre per 100 kg of cementitious material. Addition rates can vary with type of applications at deffirent temperatures and the optimum dosage may depend on the specific requirements of concrete and materials. At a given water/cementitious ratio, the slump required for placement can be controlled by varying the addition rate.



Naphthalene-based Superplasticizers Made from SNF Material

Based on KZJspark 100, KZJspark 200 and KZJspirit 300, KZJ R&D engineers have developed the two types of ready-to-use Naphthalene-based concrete admixtures below for C15-C50 ready mix concrete, precast concrete, pile concrete & grouting concrete.

KZJspark 400S
Naphthalene-based Water Reducer for C15-C45 Pile Concrete, Precast Concrete and Grouting Concrete

KZJspark 400SR
Naphthalene-based Superplasticizer for C25-C50 Ready Mix Concrete with Adjustable Time Setting Proporties

Packing:
KZJspark 400S and KZJspark 400SR are the ready to use liquid concrete admixtures which are available in bulk tanker, plastic or steel drums of 200 liters.

Shelf Life:
1~12 months after diluting and blending with water and the exactly shelf Life depends on and temperature degree and the amount of biocide agent in the formula of KZJspark 400S and KZJspark 400SR

Storage Temperature, ℃: -10~+60
Both KZJspark 400S and KZJspark 400SR contains no corrosive and flammable ingredients. Its liquid type will begin to freeze at approximately 0ºC, but will return to full strength after thawing and thorough agitation.No layering and sedimentation in long-time storage.

KZJ Concrete Set-controlling Admixtures

It is designed to mix with superplasticizer before use, which will meet high requirements for workability, flowability, superior slump retention, controlling the initial and final time, high early strength and all applications requirements.

Set Retarding Admixture

KZJcontrol 600H is powdery, the major raw meterial of KZJcontrol 600SR.

High Early Strength Agent

KZJcontrol 600Q is used to have early strength development in concrete and short the setting time of concrete in low temperature. It is recommended for use in all type of concrete, especially reinforced and pre-stressed concrete.

Concrete Viscosity Agent

KZJcontrol 600B is a white (or light yellow) powder viscosity enhancing agent for ready-mix concrete and other concrete which need enhancing the concrete viscosity properties to improve their bleeding and segregation. It is made of high-molecular weight synthetic copolymer to offer a quantum leap in concrete robustness of workability and stability.

Demould Agent for Precast Concrete

KZJmould 600 is the raw materials to make concrete mould release agents by diluting it with 4~9 parts of water. It is non toxic emulsion products, and has excellent release effects. It can reduce or eliminate surface defects of precast, pre-stressed concrete, and make most moulds being released easily and completely.

Set Accelerator

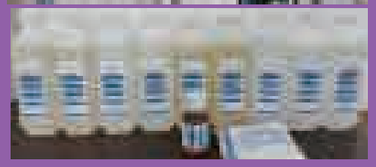
KZJcontrol 600SN is designed to improve the strength of workability of shotcrete in the application of tunnel and protective diaphram wall projects.

KZJcontrol 600SR Concrete Set Retarding Admixture

It is a ready-to-use set retarder by combining with SNF and PCE products. It is designed to prolong the initial and final set of concrete with strong retarding effects in high temperatures where extended setting times are of prime importance.

The set retardation is from 3-36hours possible with no harm to the strength, dependent on the placing conditions and concrete mix design. Normally, it can increase the time to initial set by 3 to 5 hours by the dosage of 0.5-0.6% based on the weight of cementitious material (depending on temperature and dosage) and thus extending the placing and finishing time of the concrete. The increased addition rate of KZJcontrol 600SR will compensate for the normal requirements to increase water content with increasing temperature.

Storage Temperature, ℃: -10~+50
Packing: 25kg/drum or 200L /tank (liquid)
25kg/bag (powder)
Shelf Life: 12 months after production date



KZJ Concrete Durability-enhancing Admixtures

KZJguard family can effectively improve concrete pore structure and significantly enhance the durability features of concrete such as impermeability, non-corrosion, anti-carbonation, resistance to dry-wet cycles and resistance to freeze-thaw cycles.

Air Entraining Agent

KZJguard 600AE has the capability to control defined properties of air bubbles by entraining enclosed spherical and discontinuous air bubbles distributing in the concrete, together with property of well dispersible in water and admixture, which aims to improve the workability of fresh concrete.

Anti-cracking Additive

KZJguard 600W is a dark grey powdery concrete additive mainly made from various active materials for improving concrete compactness with the by-products of cement hydration in fresh concrete. It forms an internal barrier against water transmission in mixes used for ready mixed and precast concrete, which is physical treatment for improving concrete compactness and contributes to high resistance to cracking and impermeability in term of concrete physical treatment.

Corrosion Inhibitor

KZJguard 600AF allows significant reduction of reinforcement corrosion by reducing the water film between steel and concrete, decrease the initial damage and defect, and then increase the positive pressure and mechanical binding of concrete to steel bar.

Anti-foaming Agent

KZJguard 600F is designed for minimizing the bubbles existing in the concrete and producing stable air void system in the phase of concrete mixes and generating a controlled quantity of air in concrete, uniformly dispersed microscopic bubbles which will improve concrete workability, durability and reduce segregation of the concrete mix after placement.

Silica Fume

KZJguard 600SF is an amorphous silicon dioxide (Silica) consisting of sub-micron spherical primary particles and agglomerates of these. The material is highly reactive in cementatious and ceramic bond system.

Concrete Waterproof Admixtures

KZJguard 600WF is a Chemical Treatment to protect concrete structures against moisture transmission, chemical attack and corrosion of reinforcing steel.

Storage Temperature, ℃: -10~+50
Packing: 25kg/drum or 200L /tank (liquid)
25kg/bag (powder)
Shelf Life: 12 months after production date

Cement Grinding Additive

KZJgem 200 can be widely applied in all kinds of cement plants for energy-saving and cost-reducing to improve the cement strength, increasing capacity during production, which is used tospeed up cement production and reduce its energy consumption, together with enhancing strength development and optimizing other properties.

Our KZJgem 200CG is a cement grinding aid which can reduce the adsorption force of the particle surface of milling materials by chemisorptions and physisorption. It can improve the grinding environment of the pulverizing, whilst it can stimulate the potential activity of milling materials and gain higher compressive strength of various ages, 3d strength with 20% higher and 28d strength with 10% higher, by optimizing cement size distribution and then increase cement specific surface.

Technical Specification of KZJgem 200

Description	Effective Component	Polyhydroxy Amine Compounds
	Form	Liquid
Technical Data	Total Solid Content %	50%
	Density g/ml	1.080±0.01
	Water-soluble Chloride Content, %	<0.1
	Alkali Content, %	none
	Sodium Sulfate Content	none
	pH Value	9.0±1.0
	Recommended Dosage, %	0.02~0.04%
	Storage temperature, ℃	-10 ℃-50℃
	Packing	210L Galvanized metel drum or 1000L IBS Tank
	Corrosion on steel Bar	none
	shelf Life	12months

Note: The data shown above reflects typical results based on laboratory testing under controlled conditions.

KZJgem 200CG

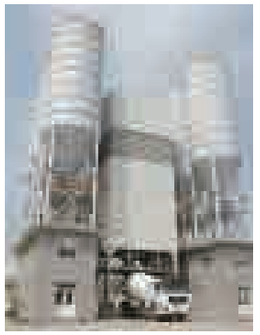
Our CGA can improve cement quality and enhancing cement grinding efficiency, and then reduce the production cost.

The dosage above is based on the cement weight and can vary depending on the law material situation, specifications and operation condition.

Storage Temperature, ℃: -10~+50
Packaging: 1000L IBS Tank or 20GP Flexitank
Shelf Life: 12 months

KZJgem 200CG is non-toxic, non-irritative, non-radioactive, non-flammable and non-corrosive and for detailed health, safety and environmental recommendations, please consult us and follow the instructions in our MSDS.

KZJ Detailed information and references:
KZJ.LETS.COM



KZJ Integrated Solutions for Concrete Batching Plants

KZJ, the leader of China concrete admixture industry, has been providing high-valued products and the complete integrated solutions in ready-mix concrete, pumping concrete, site mixing concrete, reinforced concrete, impermeable concrete and any other specialty concrete mainly used in the applications below we are proud of.

- 7 Most Signature Projects in China
- High-rise Buildings and Municipal Engineerings
- Airport & Bridges
- Dams, Ports, and Tunnels
- Road & High-speed Railways
- City Metro Line and Other Transportation System

Not only do we offer the high-valued and sophisticated products to our customers, KZJ have also created added value to help our customer understand and benefit from our product technology and service during the detailed concrete mix designed phase, laboratory and field testing support and final handover with quality concrete, thus the mutual benefit in the whole of the project value chain will be obtained.

垒知·科之杰 002398.sz kzj.lets.com

Our technical engineers are available for concrete technical support through out every phase of the construction process.

C120 Grade of Pumping Concrete

The Highest Strength Concrete in 2016,China

Xin-Tian-Di Civil Air Defense Project

KZJ Products Used: KZJpoint 400H & KZJpoint 400GR

Project Description:

Guiyang Xintiandi Civil Air Defense Project is located in Guizhou Military District, Guiyang City, GuiZhou Province, China. The air defense tunnel roof used C120 steel fiber pumped concretes.

Concrete Technology we have supported with our Admixture:

1. Slump≥240mm, flow≥650mm, No slump or flow loss in 3 hours
2. Solving the High Viscosity problem in C120 concrete
3. The initial setting time≥20h, and the final setting time≤30h
4. Mix with a large amount of steel fiber (poor encapsulation and segregation resistance of concrete, relatively coarse and difficult to pump);
5. Mass concrete (2 meters thickness, high peak hydration temperature rise)

Beam of 2- (31m + 31m) 32°20′ swivel angle

The largest turning continuous beam in China

Jiqing High-speed Railway Zibo Super Bridge

Project Description:

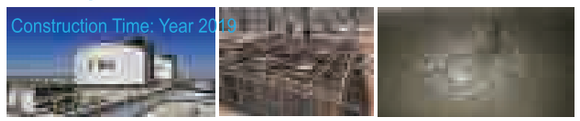
It has a main line length of 307.9 kilometers, and constitutes the main channels of the'three vertical-horizontal' intercity rail transit network in Shandong Province. The beam length of the swivel segment of Zibo Super Bridge is 2- (31m + 31m), the swivel angle is 32°20′ with 4,200tons of swivel weight and the swivel structure is a center load swivel.

Concrete Technology we have supported with our admixture:

1. The Initial Slump mm controlled within 200mm±20mm, flow≥550mm, No slump or flow loss in 1 hour, and can be lost in 20mm in 2hours
2. The air content of C50 concrete is between 2.0 and 4.0, and the appearance and color of the beam shall be good after demoulding
3. One type of admixture should be well adaptive to the local high-clay content sand, and three types of different cement.

Lithium-ion Battery Material Fractionation Tower

The Highest Frost Resistance of F300 concrete



Project Description:

It has high requirements for concrete durability (The liquid nitrogen storage tank at -196℃), design strength C55, impermeability level P12, frost resistance grade F300 (the mass loss rate after 300 freeze-thaw cycles is 0.71% and the strength loss rate is 3.2%), which all meet the design requirements.

Concrete Technology by KZJpoint 400F:

F300 of concrete fronst grade, P12 Impermeability grade, 16~ 18hrs setting time, 4.0% ~ 5.0% Air content, 5hrs Slump Retention

The Highest Strength Concrete in 2016, China

The Highest Skyscraper in GuiZhou, China

Detailed information and references:

KZJ.LETS.COM

KZJ

The Longest Precast Box Girder in China

The Highest Frost Resistance Grade F300 Concrete in China

Our products are used in the 7 Most well-known signature projects in China

The wide of One Bridge Desk is 12.55M with weight of 1,854 tons.

The Longest Precast Box Girder in China

The largest island-land liaison box Girder project in the world.

Zhoushan Sea Bridge

Project Description:

Zhoushan Sea Bridge is the largest transportation infrastructure project in China. With a total length of 48.16 kilometers and a total investment of about 10 billion RMB. The box girder is the longest and heaviest whole-hole prefabricated box girder in China, with 70 meters length, 4 meters high.

Concrete Technology we have supported.

1. Solving the High Viscosity problem in C80 concrete with more than 620kgs of cement in one cubic meter
2. Big Challenge on Controlling box girder appearance, strength development, and short setting time in winter;
3. Reducing the hydration heat in more than 700 ㎥ mass concrete in one continuous cast of C55 box girder
4. Preventing the occurrence of cracks in the C45 pier body

The Shortest Surfacing Finishing Time in precast Concrete, China

The largest turning continuous beam in China

Setting time: ≥65 hours

The Longest Setting Time in China

Hangzhou Metro Line 9

Project Description:

The total length of the line is about 16.939km, all of which are underground lines.The main foundation pit of Genshan Road Station is divided into four foundation pits to organize construction. At the same time, river diversions, bridge demolition and reconstruction are interspersed with each other, and the foundation pit construction and bridge construction have a great influence on each other.

Concrete Technology with KZJpoint 400VR:

More than 65hrs Setting Time with C35, Slump of 200mm ± 20mm, Ground water contains salt, which has the effect of early strengthening and slump retention.

Concrete Surfacing Finishing time≤120mins

The Shortest Surfacing Finishing Time in concrete

Xiamen Metro Line 1 Metro Segment

KZJ Products Used: KZJpoint 400Q and KZJpoint 400G

Construction Time: Year 2017

Project Description:

It generally runs from north to south, connecting important groups such as Siming District, Huli District and Jimei District, which radiates northward from the xiamen island inside to Xiamen island outside by a cross-sea rapid connection. It consists more than 20,000 ring segments and approximately 140,000m3 of concrete. The project requires the surface finishing time of the concrete within 120mins. By developing an early-strength polycarboxylic acid superplasticizer compounding with set accelerator, KZJpoint 400Q effectively solves the problem of surfacing finishing time of the segment at a low temperature environment. At the same time, the problems of poor thixotropy, high viscosity, and bubbles on appearance were successfully solved too.

Concrete Technology we have supported with our Admixture:

1. C50 Grade of concrete, P12 Impermeability grade, Slump: 50mm±20mm
2. Air content≤2%, 56d electric flux (C) <1000, The maximum chloride ion content of reinforced concrete is 0.06%
3. Good thixotropy ability, the concrete casting time of a piece of the segment is less than 3min, no obvious defects in the segment appearance.
9. The sliding problem of concrete, which happens when the segment is not conveyed with the mold during the conveyance process

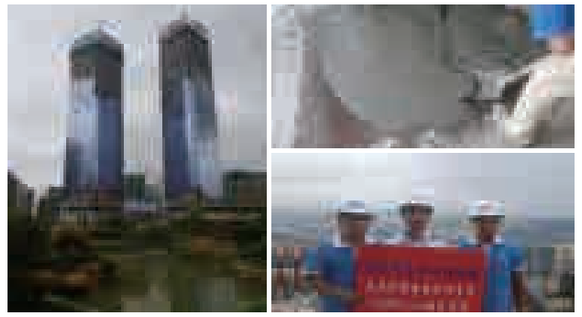
345 Meters Concrete Pumping Height

The Highest Skyscraper in 2016, China

Guiyang Flower Orchard Twin Towers Projects

KZJ Products Used: KZJcontrol 600SR & KZJpoint 400G

Construction Time: Year 2016



Project Description:

Guiyang Flower Orchard Twin Towers project consists of two towers, east tower with 406m of structure height and west tower with 345m of building height, and the total construction area of two towers is about 827,000 square meters, with a total investment of more than RMB10.6 billion yuan.

Concrete Technology we have supported:

1. High pump pressure: extremely high pumping height (345m);
2. Solving the high viscosity problem in C90 concrete
3. Making the tailored formula of our concrete admixture with the poor aggregate materials (complex and changeable mechanism mountain sand) to make the concrete pumping 345m without bleeding and separation

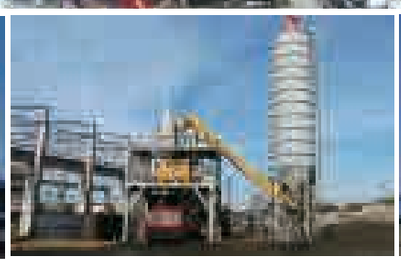
Visit Us at KZJ.LETS.COM

High Rang Polycarboxylate Superplasticizer for Ready Mix Concrete in High-rise Buildings

KZJ Products Innovation

KZJ products have been applied in various high-rise buildings and municipal engineering with the excellent integrated functions, such as water reduction, set-retarding, high early strength, plasticity, pump ability, anti-permeability, flowability, excellent durability, water repellent, etc.

1000+
Batching Plants Using Our Concrete Superplasticizer



Shenzhen PINGAN IFC

Project Description:

Shenzhen PINGAN IFC Building is our successful example of high-rise Buildings, which absorbs the multi-functional abilities of our polycarboxylate superplasticizer in concrete, such as high durability & workability, good compression strength, anti-permeability and self-compacting to win the superior performance in construction structure. Shenzhen PINGAN IFC with total plan height of 646m, is the highest building in China in 2014.

KZJ Integrated Solutions:

Concrete Requirements:
SCC Concrete, Good Workability and Super-High Pumping Ability

Products Used:
KZJpoint 400Q, KZJpoint 400GR, KZJpoint 400H, KZJcontrol 600SR

Technical Service:
Once the related batching plant faced the problems of concrete mix design and workability, we asked our experts to work in the construction job site to provide tailor-made solutions for excellent workability.and cement to reduce the concrete cost accordingly.

KZJ Products Used:

KZJpoint 400GR, KZJcontrol 600SR

Anshun Sports Center, Anhui Province

The total area of the sports center project is about 320,001 squre meters and the total construction area is about 104,210㎡. which are 25,000 stadiums covering a area of 31,320㎡, 4,500 stadiums with a area of 19,297.29㎡and 1,000 swimming pools with area of about 14,241.6㎡.The total investment of the project is about RMB 1 billion yuan, and the project is expected to be completed on September 30th, 2020.

Concrete Requirements:

1.There are many structural columns in the gymnasium which are not easy to vibrate and can only be casted using C40 SCC concrete

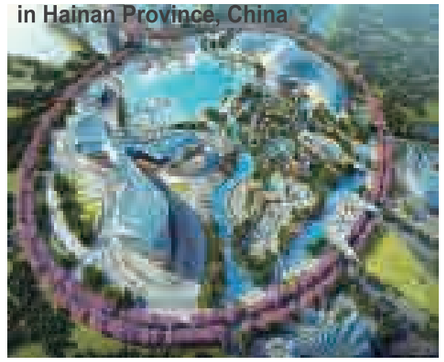
2.Requirements of the fluidity, wrapping, cohesiveness, super slump retention, and bubble size of concrete are also higher than those of ordinary pumping concrete.

Technical Service:

Laboratory Test of different types of Aggregates to make the tailored formula of KZJ Conrete admixtureand field testing supports accordingly.

Twin Towers Hotel in Haihua Island

in Hainan Province, China



560 Meters Height
Phnom Penh Twin World Trade Center in Cambodia

Project Description:

The tower building has a height of 104 meters, one basement, nineteen floors above ground, an outer frame with core tube shear structure wall; a transportation hub of 34,000 square meters, a tree-shaped steel column with a single-layer reticulated shell structure. As the vanguard of the Haihua Island projects, the Twin Towers Hotel is the only project in Danzhou that won the Luban Award.

KZJ Solutions:

The manufactured sand is coarse and the aggregate contains much powder, heavy clay content and a lot of weathered rocks, bad distribution in gradation.
Concrete performance requirement: 20mm slump loss after 2hrs, good workability and easy to pump after two hours.

Products Used:
KZJpoint 400S Polycarboxylate superplasticizer with good slump retention

Others Job Reference

150 Meters Height
Xiangtan Center Buildings Group

250 Meters Height
Ningbo New World Plaza

270 Meters Height
Wenshan Urban Compre -hensive Pipe Gallery Project

285 Meters Height
Zhengzhou Green Central Plaza Twin Towers

Our Valuable Customers

Global Lafarge

CSCEC State Construction Engineering Corporation (Stock Code: 002302.SZ)

China Resources Cement Holding Limited (Stock Code: 1313 HK)

Tangshan Jidong Cement Co., Ltd. (Stock Code: 000401 SZ)

China Construction Engineering Corporation (Stock Code: 601668.SH)

Country Garden (Stock Code: 02007 HK)

Project Description:

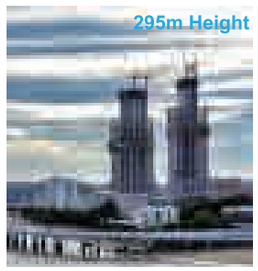
Forest City is located in Johor, Malaysia. It is a smart ecological green city next to Singapore built by Country Garden with a total investment of RMB250 billions. The outer wall of the building is covered with plants, the ground is covered with parks, and no vehicles pass through.

KZJ Integrated Solutions:

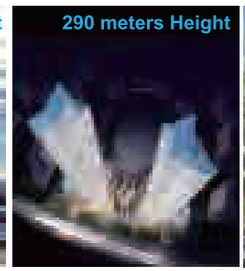
Concrete Requirements:
1.Good Slump Retention, flowability with M-Sand
2.C60 pumped concrete requires 3d strength to reach 95% of design strength;

Products Used:
KZJpoint 400Q, KZJpoint 400G, KZJcontrol 600SR

KZJ Technical Service:
Laboratory and field testing support to help the batching plants around Forest City having a more flexible selection of the aggregates and cement to reduce the concrete cost accordingly.



Xiamen ShiMao Strait Twin Towers



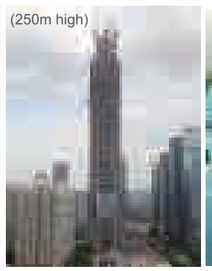
Zhengzhou Green Central Plaza Twin Towers


Baoji Guojin Center


GuiZhou Hotel

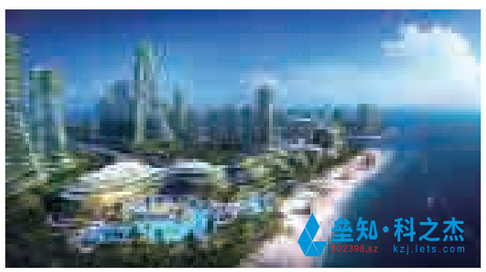

Shenzhen PINGAN IFC


Chongqing Raffles City



Nanjing Financial Center


Southeast International Shipping Center



Forest City in Johor, Malaysia

Xiazhang Sea Bridge
in Fujian Province, China

In 2011, we has fulfilled this strategic planning with the project of Xiazhang Cross-sea Bridge,Starting from Xiamen Haicang District, crossing the mouth of Jiulong River and ending at FugongHouzhai, Xiazhang Bridge is 9.7km length five-span continuous half-floating cable-stayed bridge with a total investment of 5.1 billion RMB.

Concrete Requirements:
Pile Cap Concrete of Large Volume (required 30hrs setting time), Marine Work Concrete with High Durability.

Products Used:
KZJpoint 400Q, KZJpoint 400G, KZJcontrol 600SR
KZJguard 600WF, KZJdemould 600

KZJ Technical Supports:
We have provided the concrete admixture with the good comprehensive properties, such as high water reduction, high compressive strength, good slump retention, etc. What is the most important is that we optimize

Zhejiang Jinjiao Bridge

Chongqing Light Rail Transit Bridge

Hengzhou Agricultural Bridge
in Hu'nan Province

Nanjimen Railway Bridge

Descriptions
It connects Nan'an district and yuzhong district, which is the key control project of the second phase of rail transit line 10.

Prefabricated bridge panel -C60 (polypropylene fibre), ambient temperature T2 Cast-in-place seam -C60(microexpansive fine stone), ambient level T2. Upper tower (cable tower anchorage) -C50(steel fiber), environment grade T3 Cofferdam seal -C30 underwater, environmental grade T1 Pile cap -C35 reinforcement, environmental grade T2 Platform body expanded base cap tower C35 large volumewith grade T2, Pier-C40 with environment grade T3.

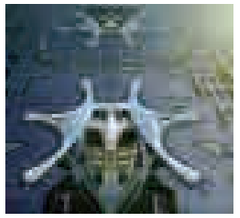
KZJ Products Used: KZJpoint 400G & KZJpoint 400Q

Chengdu Tianfu International Airport
Located in Chengdu Hi-tech East District, Lucheng Town (Jianyang City).

Project Descriptions:
Positioned as a national-level international aviation hub and the signature airport in the Silk Road Economic Belt, it will be responsible for all international routes departing from Chengdu, and will be built into a "world-class, domestic- leading" humanistic, intelligent and green airport.

Concrete Requirements:
Good fluidity, no bleeding, no grasping, the flow after 3hrs shall have more than 500mm.

KZJ Solution:
KZJpoint 400GR is the concrete solution, which is designed to make the concrete to achieve good flowability within the fixed W/C ratio. When the local aggregate has the slight fluctuation, it can balanced the slump retention composition with water reduction composition in the formula.



Our technicals engineers would provide the professional technical supports with quick respones on the construction job sites.

Xiamen Jimei Bridge (8.43km)

XiaZhang Sea Bridge Bridge (9.7 km)

Xiamen XingLin Bridge (5.22 km)

Visit Us at KZJ.LETS.COM

KZJ Concrete Chemicals in Famous Bridges & Airports Projects

Xiamen International Airport

24hrs Technical Service
+ Customized formulate of KZJ Concrete Admixtures

Our Customized Technical Supports to Create Comprehensive Value to Our Customers in Batching Plants

Chongqing Egongyan Track Special Bridge

Zhenzhuo Beam Factory
for Bridge Project

With a total length of 227 kilometers and a design speed of 350 kilometers/hrs, He'nan section started construction in 2016 and is expected to be completed in December 2020, with a total investment of 42.72 billion RMB yuan.

Technical Points and Difficulties
1. slump 200±20mm, Expension 550±20mm 1hrs lump＞180mm, Expension ＞500mm;
2. C50 High grade concrete is sticky;
3.The material fluctuates greatly and the clay content in sand isnot stable and fluctuates greatly in every lots.
4. Concrete with air content of 2.0%~4.0% is unstable

KZJ Solutions: 1. 24hrs Technical Services
2. KZJpoint 300G and KZJpoint 300Q

Zhengzhou Xinzheng
International Airport

Concrete Requirement:
C30 pumping concrete expansion is ≥500mm after 1hour and with 20mm slump loss in 2hrs.The workability of concrete meets the requirements of high-level pumping and no bleeding.

Concrete Material Problem:
The raw materials selected in the project fluctuate greatly, production is sensitive, and slump control is difficult. The pumping loss is too large. Cement is sensitive in concrete production for the dosage of admixtures

KZJ Solution:
We adjusted the admixture formula to make concrete with good cohesiveness, improved wrapping, plump paste and good softness. In the follow-up production process after delivery, it was founded that the concrete was relatively soft, and the performance of it was relatively better and relatively stable.

Middle Route Project of South-North Water Diversion (China's major strategic project)

The Technical Difficulties of C35 underwater cast-in-place concrete in this project are:

The traffic condition requires the concrete to have slump retention of more than 500mm after 2hrs to meet underwater pumping. Moreover,The depth of the underwater pile is 35m, and continuous pouring is required, which requires good concrete flowability and workability

KZJ Solution:

We introduced the slump-preserving agent and regulator in the admixture formula, adjusted the dosage of retarding ingredients reasonably, solved the problem of stone powder collapse completely, and finally meet the requirements of construction pumping, impermeability and sulfate resistance durability.

KZJpoint 400Q
High Early Strength Polycarboxylate Superplasticizier for Precast, Pile and Prestress Concrete in Tunnel, Maglev and Beam projects

KZJpoint 400AC
High Range Polycarboxylate Superplasticizer of Chloride & Sulphate Corrosion Resistance

Set Accelerator for Shotcrete in Tunnels

Item No.: KZJcontrol 600SN

Problem of Old generation of Set accelerator

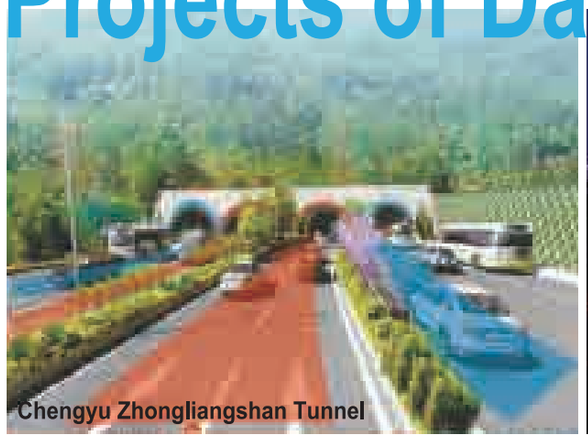
There is dust in the spraying process of old generation acceleratorwhich is easy to make damage to the concrete, waste of the material and affects the durability of the concrete.

Advantage of New Generation Set Accelerator

KZJcontrol 600SN is our shotcrete solution to short the initial and final setting time with lower dosage, good adaptability and improving durabiity. Meanwhile, there is no dust during the spraying process to ensure the health of the workers and good adhesive property can reduce the waste of materials, and thus reduce the cost and enhance the duriability of concrete.

Along with the high performance and excellent integrated functions in the concrete, KZJ high range polycarboxylate superplasticizers have been successfully applied in ports, dams, tunnels.

KZJ Concrete Superplasticizer in Projects of Dams, Ports and Tunnels



Chengyu Zhongliangshan Tunnel

Xiamen Xiang'an Sea tunnel
The first Sea tunnel in mainland China.
It is also the largest sea tunnel in the world.

KZJ Customers Strategy

We consider our customers as our permanent partners, respect and understand them. We seek to provide our customers with products and solutions beyond their expectation, and lead active and healthy modern lifestyle. In the eyes of our customers, each one of us stands for KZJ. We believe that a tiny mistake of ours means complete failure to our customers.

Chengyu Zhongliangshan Tunnel

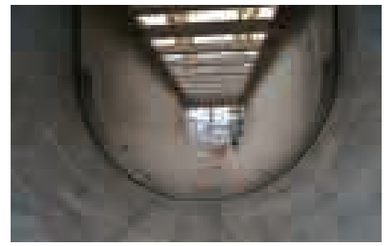
Concrete Requirements: C35 Concrete with impermeability grade P12

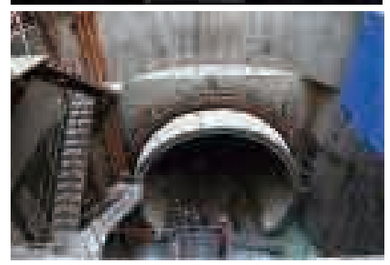
Concrete Problem: The pumping distance is too long and the construction environment is too complicated to meet requirements on the P12 performance of the concrete. It is hard to get the solution of controlling the slump loss in high temperature weather in summer.

Products Used: KZJpoint 400AC, KZJpoint 400Q, KZJguard 600WF

KZJ Solutions:

Firstly, our technical engineer adjusted the admixture formula to solve the slump loss problem. Secondly we have introduced anti-foaming agent and air-entraining agent to meet the requirements of concrete impermeability based on the fixed concrete mix design.





Xiang'an Sea Tunnel in Xiamen City

KZJpoint 400Q Application in the Precast concrete for China Railway 11th Bureau Zhanghu Beam Factory

Changsha City,China
Maglev Precast Concrete

Project Description:

The maglev line is taken from the north side of Changsha to the South Railway Station, and walk sideways connecting the old and new terminals of Huanghua International Airport. The Length of whole line is 18.52 kilometers. There are three stations on the whole line, namely South Railway Station, Langli Station and Huanghua Airport Station. The vehicle adopts low and medium speed maglev trains, with a maximum speed of 100 km/hour. It is proposed to use 3 marshalling trains for the operation of maglev trains, and 1 crossroad for the whole line. In the early stage, 5 trains are required; in the middle period, 6 trains and 7 trains are required; in the long term, 12 trains and 14 trains are required. The technical and economic investment are RMB226.5 million yuan/km.

Concrete Requirements:

1.The slump loss in 2 hours within 20mm, the flow expansion after 2hrs exceeds 500mm
2.Good workability and fluidity, no exposed stones and no accumulation.
3.Good pumpability, the viscosity of high grade concrete should be controlled by admixture
4.Continuous casting beams require smooth appearance in thick beams and solving great difficulty in vibrating, 7 days strength reachs 100% of the designed strength

KZJ Products Used:

KZJpoint 400Q
High Range Polycarboxylate Superplasticizer for Precast Concrete with Good Slump Retention Performance and Viscosity Compounds to Meet the Construction Requirements.

Our Challengeable Tunnel Application with KZJ PCE Products

Xiang'an Sea Tunnel in Xiamen

The first section Sea tunnel in Fujing,China and the longest sea Tunnel in the Asia.

Project Description

With a total length of 5.9km, Xiang'an subsea tunnel is an important connection between Xiamen Island and Xiang'an District. The tunnel is designed and built with two-way of 6-lane and runs across the sea area with three tunnels (2 traffic tunnels on both sides and 1 service tunnel in the middle). There are 4 ventilation shafts, 6 transverse galleries for vehicles and 12 transverse galleries for pedestrian. Upon the completion on April 26, 2010, the time on traffic is 82min less than before. The tunnel is built with the methods of drilling, blasting and subsurface excavating. It is and is also the one of the biggest section in the world.

Concrete Requirements:

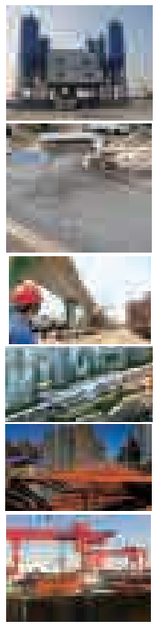
Short Setting Time and High Early Strength Concrete with High Durability and Anti-permeability

KZJ Products Used:

KZJpoint 400AC, KZJpoint 400Q, KZJguard 600WF

KZJ Technical Service:

tailor-made Concrete admixtures formula with the workable concrete mix design 24hrs Job site and field technical support when our batching plants need us.



KZJ Concrete Admixtures in Applications of High-speed Railway & City Metro Lines

Panjin-yingkou Passenger Transport Railway

Upholding the operation idea of 'create value for customer', KZJ has been a provider of integrated planning for concrete admixture production process and application technology. We tackle key technology problems and carry out customization production.

Our scientific R&D engineers and experienced technical engineers are aligned with the core competencies of KZJ and focus on solutions for concrete technology. When our customer was facing a multitude of challenges in concrete manufacturing process, we would be there to offer our customers the problem solutions, For instance, Panjin-yingkou passenger transport railway concrete is a case in point.

Project Description

The total length of the main line is 89.422km. The design speed of the whole line is 350km per hour. With a total investment of 12.786 billion RMB, this high-speed railway was started to build on May 31, 2009 and begins to run in 2012.

Concrete Requirements: High durability

Products Used: KZJpoint 400Q, KZJguard 600W and KZJguard 600WF

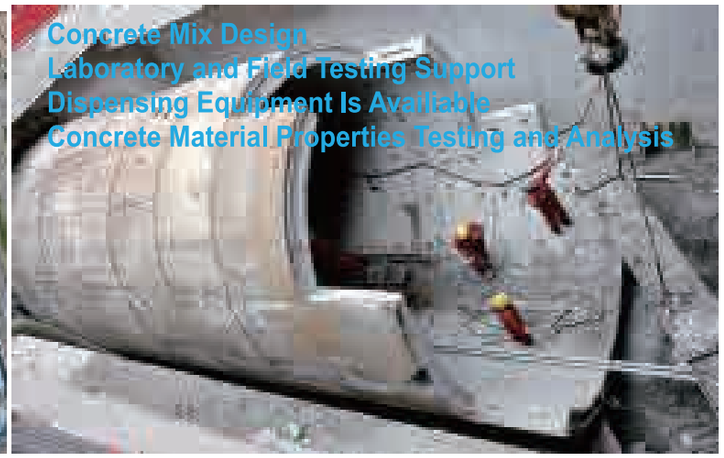
KZJ Technical Support: Flexible concrete chemical formula adjusts to well fit the concrete requirement on the job site + advices on concrete mix design + Lab test support. All of these efforts have endowed us a favorable reputation from our high-speed railway concrete customers.

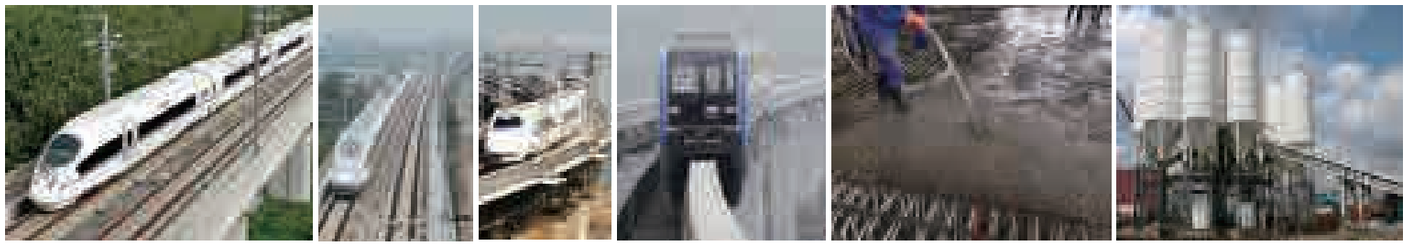
KZJ Job references
Concrete Admixtures for High-Speed Railway concrete

Zhengkai Intercity Railway
Jiqing High-speed Railway
Lianyungang to Yancheng Railway

- Zhangjiakou Railway
- Luowang Railway
- Yuqian Express Railway
- JinTao Railway
- Ningbo Mountain Railway
- YongJi Railway
- Guirong Expressway
- Zhang-Hu Railway

KZJ Solutions:
Customerized Concrete Admixtures
+
24hrs Job Site Technical Supports





Panjin-Yingkou Transport Railway concrete

(China 'four vertical and four horizontal' high-speed railway Project)

The Yuqian Express Railway

The route leads from Chongqing and passes through Qijiang, Tongzi, Zunyi and Xifeng to Guiyang North Station. The total length of the route is 345 km with a total investment of 51.6 billion yuan, of which 112km are in Chongqing and 233km are in Guizhou.

KZJ Products Used for Yuqian and Wangan Expressway

KZJpoint 400S & KZJpoint 400GR -High Range Polycarboxylic Superplasticizers

- **38.5 km +** Zhengzhou Rail Transit Line 2
- **33.6 km +** Guiyang Rail Transit Line 1

Chongqing Light Railway (LRT) Concrete

(The first railway applying straddle type overhead monorail in China)

Wangan Expressway

The bridges and tunnels of the whole line occupy 58.25% of the total length. And there are 5 interchanges, 11 separate interchanges, and 2 flyovers in Wangmo-Youmai-Ceheng, Yatta, and Qiaoma. The permanent construction area is 3,167,002 ㎡ and the construction period is 4 years.

- **20.550meters** Bridges (66 seats)
- **17.227meters** Tunnels (17seats)
- **53 +** Passage Ways

Concrete Technical Requirements:

Large-volume platform concrete, high-durability concrete, and ultra-high water reducing rate;
The concrete has good fluidity, good wrapping, moderate viscosity, <20mm slump lossin 2.5hrs and no pitted surface;

Chongqing West Railway Station Hub

Hangzhou Metro Line 5 Phase 1- SG5-6 section

KZJ Products Used:
KZJpoint 400S
KZJpoint 400AC
Polycarbboxylate Superplasticizer

Project Description:

It locates in Yile Road from Zhejiang University Station to Yile Road Station, East and West with River Bridge connection construction.The first phase of Hangzhou Metro Line 5 involves complex engineering plates, including viaducts, underground floors, beams and slabs. It also has high requirements for waterproof, impermeable and anti-chlorine ion penetration.

Concrete Requirement:

1. The top, bottom and side walls of this project should be made of waterproof concrete with a strength grade of C35;
2. The total alkali content in concrete should not be greater than 3kg / m3. The maximum chloride ion content in waterproof concrete is 0.06%, and the chloride ion diffusion co-efficient of 56 days is required to be less than 3.0*10 -12 ㎡/s;
3. Even though Machine-made sand has high powder content and poor grading distribution which cause the poor workability and fast slump loss, customer required for good-flow concrete (Initial expansion flow of about 600mm and without slump loss in one hrs, 2hurs slump loss within 40mm)

KZJ Solutions

We solved the problem of slump retention by using our newly products of slow-release slump retention agent, and adjust the formula of KZJpoint 400G to meet the requirements of compatibility and improve the concrete compactness to reduce the chloride ion diffusion coefficient.

- **250meters Height** Xiamen Bus Rapid System BRT Project
- **26.5km +** Guiyang Urban Rail Transit Line 1

Zhengzhou Metro Line 4 & Line 5

The total length of line 4 is 30.135km with 28 stations and the length of line 5 is about 32 km with 29stations.
The main line of them are laid underground.

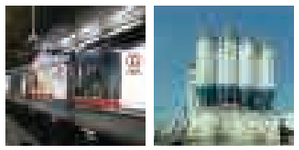
Concrete Technical Difficulties

1.The slump needs to be 200±20mm on site after 2hrs transportation.
2. Concrete is high sensitive to the using amount of cement which lead to construction difficulty.
3. The raw materials fluctuate greatly and the slump loss problem is severe.
4. Poor concrete workability, not easy to pump.

KZJ Solutions:

KZJpoint 400S is the the solution to solve the slump loss problem in summer and put the low-sensitive PCE material in KZJpoint 400S to make admixture fit well with the sensitive cement and fluctuated aggregates.

Guangfo Metro Phase II



KZJ Products Used:
KZJpoint 400S
Polycarbboxylate Superplasticizer
KZJcontrol 600SR
Set Retarding Admixture

Since the overall quality of the local fly ash in Guangzhou and Foshan fluctuated greatly.The batching plant has required to make customerized admixtures to fit well with their fluctuated quality aggregates. and we did it by using of KZJpoint 400S and KZJcontrol 600SR.

Along with our KZJpoint 400S and KZJcontrol 600SR, the viscosity of the concrete is greatly reduced, and the concrete collapse is obviously improved. Meanwhile, our admixtures can also adapt to three kinds of fly ash materials, which meet the technical requirements of no slump loss in 2 hrs and slump lossof less than 4cm in 3hrs.

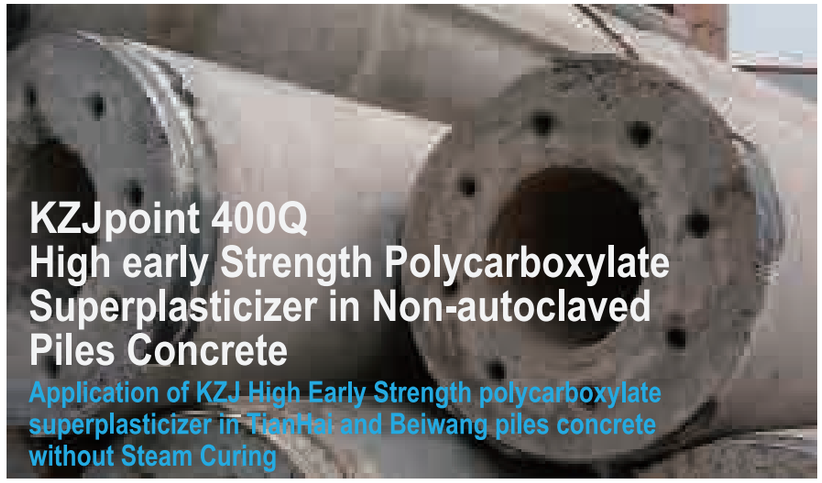
Guangfo Metro Phase II

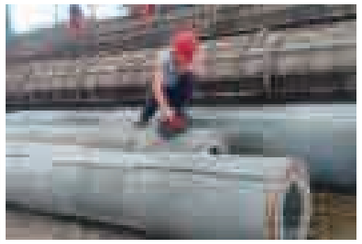
Our products has verified by CRCC since 2006 and used in the applications of more than 60 high-speed railway projects. Our more than 300 technical engineers are availabe in 24hrs for technical support throughout every phase of the construction process. The tailor-made products and solutions to give extra reassurance are our new business development policy to our long-term and valued customers.

KZJ Superplasticizers for Piles Concrete

Item No.: KZJpoint 400Q
It is made from our KZJpoint 300Q (High early Strength PCE) Material which is designed for autoclave-free high-strength pipe pile concrete, precast concrete and prestress concrete. It complies with GB 8076 and ASTM C494 Type E.

Item No.: KZJspark 400S
The traditional nathphalene-based superplasticizer with steam curing treatment for pile concrete.





Normally and traditionally, pipe pile conpany will choose naphthalene-based superplasticizer firstly as the Naphthalene-based superplasticizer has been developed in the last century and the technology of it has been used all around the world. Nowadays, with the applications of polycarboxylate superplasticizer in pipe pile company successfully, Polycarboxylate superplasticizer has been popular in China recently.Since there is limited precedent for mass production in overseas market with PCE products, KZJ China would like to be the pacemaker of technical promoting the high early strength polycarboxylate Superplasticizer under steam curing or Non-autoclaved curing by the different formula in the KZJpoint 400Q. Our rich experience of R&D in PCE and concrete technology from our many customers of pipe piles companies in the last five years, such as TianHai Pipe Pile company group and Beiwant Pipe Piles concrete, would benefit our overseas customers of pipe pile companies.

The Advantages of KZJpoint 400Q

High Water Reducing Ratio

The water-reducing mechanism and principle of polycarboxylate superplasticizer is different from naphthalene-based superplasticizer. When it is used on pipe piles, the viscosity of concrete becomes significantly great with more than 500kg cementious materials/m3, and the heavy viscosity must be improved with KZJpoint 400Q. On the other hand, the special mould process of the pipe pile makes the proper increase of the water-cement ratio not adversely affect its strength.

Pile Concrete with KZJpoint 400Q under steam curing with the temperature of 60~80 degree can reach 70%~80% of the designed strength in 12hrs, If It is under natural curing (non-Autoclaved), the strength devevlops to 60~70% of designed strength in 12hrs and 100% of the designed strength in 3 days which meets the standard requirement of GB13476.

Good Adaptability and Plasticity

KZJpoint 400Q has better adaptability to various cement, flyash, slag, silica fume, and the initial slump of 50-90mm will be achieved easily, which meets the requirements of feeding pouring and centrifugal molding process.

Tianhai Group High-strength C80 Non-Autoclaved Pipe Pile Concrete

Pile Concrete Technical Probblems KZJ have solved by KZJpoint 400Q

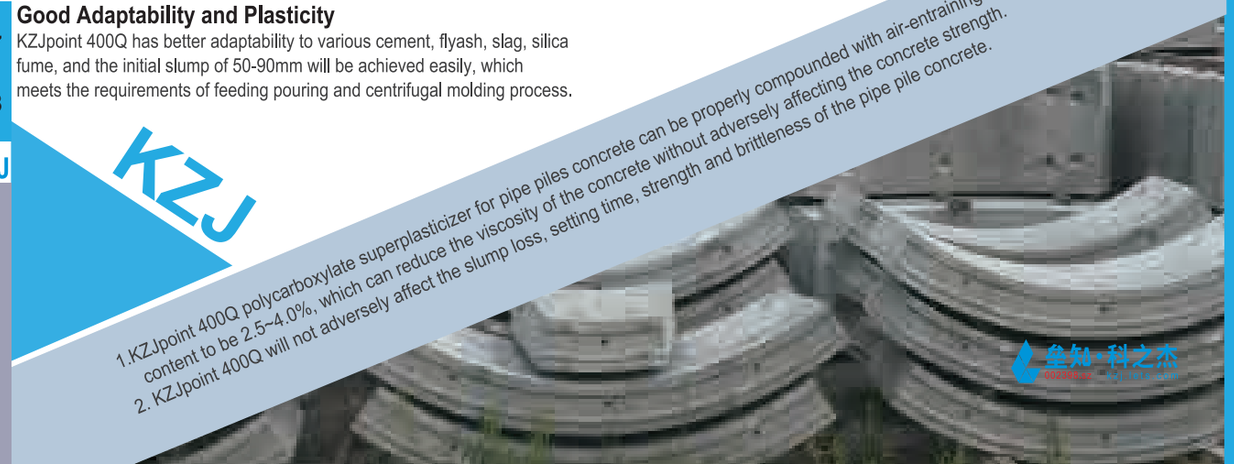
1. The heavy viscosity of pile concrete
2. Sensitivity in production: the change of sand moisture content, the fluctuation of slump adjustment is relatively great.
3. The slump loss problem of carboxylic acid in production:
   It is mixed with fine sand, and its adsorption is relatively large, which leads to the reduction of effective ingredients and the slump retention ability is also greatly affected.

Application of High Early Strength Polycarboxylate Superplasticizer in Beiwang Pipe Pile Concrete

With the unremitting efforts of the technicians in Beiwang pipe pile, we successfully solved problems of the setting time, static stop process, less residual slurry and excessive stickiness of the pipe pile comcrete produced by using polycarboxylate superplasticizer and other issues. Beiwang pipe pile has been using KZJpoint 400Q for more than 3 years and the production condition is good.

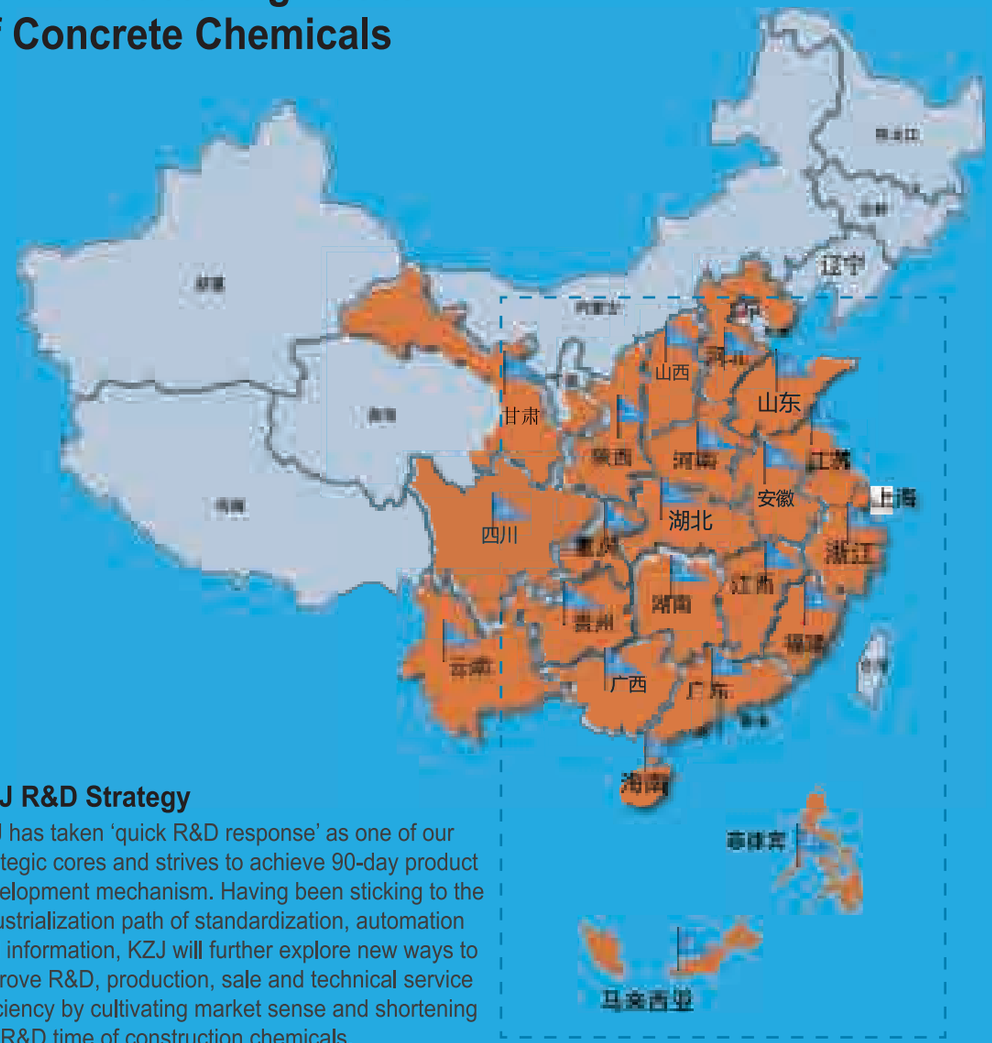
Usage of KZJpoint 400Q

1.KZJpoint 400Q polycarboxylate superplasticizer for pipe piles concrete can be properly compounded with air-entraining agent to control concrete air content to be 2.5~4.0%, which can reduce the viscosity of the concrete without adversely affecting the concrete strength.
2. KZJpoint 400Q will not adversely affect the slump loss, setting time, strength and brittleness of the pipe pile concrete.



KZJ Global

15 Manufacturing Bases of Concrete Chemicals



KZJ R&D Strategy

KZJ has taken ‘quick R&D response’ as one of our strategic cores and strives to achieve 90-day product development mechanism. Having been sticking to the industrialization path of standardization, automation and information, KZJ will further explore new ways to improve R&D, production, sale and technical service efficiency by cultivating market sense and shortening the R&D time of construction chemicals.

Detailed information and references:
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